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| **Repellence elicited by DEET after previous exposure of the cockroaches to the same repellent (Fig 2).** |
| **Repellence Coefficients (RC)** |  |  |
| **Replicates** | **RC non pre-exposed insects** | **RC acetone pre-exposed insects** | **RC DEET pre-exposed insects** |
| 1 | 0,8 | 0,71 | 0,7 |
| 2 | 0,75 | 0,89 | 0,99 |
| 3 | 0,63 | 0,45 | 1 |
| 4 | 0,51 | 0,66 | 0,73 |
| 5 | 0,9 | 0,61 | 0,78 |
| 6 | 0,75 | 0,94 | 0,98 |
| 7 | 0,43 | 0,95 | 0,78 |
| 8 | 0,86 | 0,52 | 0,98 |
| 9 | 0,67 | 0,40 | 0,92 |
| **Mean** | **0,70** | **0,68** | **0,87** |
|  |  |   |   |
|  |  |   |   |
|  |  |  |  |
| Insects were pre-exposed to 250 mg/ml of DEET vapours, |  |
| and then repellency was tested using a solution of 100 mg/ml of the same substance. |
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|  |  |  |  |
| **Repellence elicited by DEET after treatment of the cockroaches´ antennae with the NO donor SNAC (Fig 3).** |
|  |  |  |  |
| **Replicates** | **RC non pre-treated insects** | **RC solvent pre-treated insects** | **RC SNAC pre-treated insects** |
| 1 | 0,41 | 0,77 | 0,84 |
| 2 | 1 | 0,72 | 0,82 |
| 3 | 0,56 | 0,83 | 0,97 |
| 4 | 0,91 | 0,84 | 0,79 |
| 5 | 1 | 1 | 1 |
| 6 | 0,75 | 0,44 | 0,95 |
| 7 | 0,8 | 0,75 | 1 |
| 8 | 0,86 | 0,69 | 0,98 |
| 9 | 0,43 | 0,2 | 1 |
| 10 | 0,67 | 0,79 | 0,94 |
| 11 | 0,75 | 0,8 | 0,97 |
| 12 | 0,68 | 0,89 | 0,99 |
| 13 | 0,67 | 0,88 | 0,97 |
| 14 | 0,9 | 0,9 | 0,99 |
| 15 | 0,63 | 0,82 | 1 |
| 16 | 0,75 | 0,98 | 0,72 |
| 17 | 0,51 | 0,7 | 0,65 |
| **Mean** | **0,72** | **0,77** | **0,92** |
| Insects were treated with 1 µl of NO donor SNAC (40mM) applied on the antennae;  |  |
| control groups were non-pretreated or pre-treated with 1 µl of distilled water + Triton X-100 (solvent). |
| Then, repellency was tested with 100 mg/ml DEET |  |
|  |  |  |  |
| **Amplitude of the electrical signal of the antennae of cockroaches in response to DEET (Result showed in the text)** |
|  |  |  |  |
| **Replicate** | **Amplitude (in mV)** |  |  |
| 1 | 0,18 |  |  |
| 2 | 0,19 |  |  |
| 3 | 0,46 |  |  |
| 4 | 0,17 |  |  |
| 5 | 0,16 |  |  |
| 6 | 0,18 |  |  |
| 7 | 0,3 |  |  |
| 8 | 0,28 |  |  |
| 9 | 0,14 |  |  |
| **Mean** | **0,23** |  |  |
| Each replicate is the mean of three consecutive measurements on a single antenna |
|  |  |  |  |
|  |  |  |  |
| **Electrical response of the antennae to DEET after a long stimulation with the same substance (Fig 4).** |
| **Control group: adapting stimulus: clean air** |  |
| **Replicate** | **Amplitude before adaptation**  | **Amplitude after adaptation** | **Ratio (after/before)** |
| 1 | 0,06 | 0,01 | 0,17 |
| 2 | 0,76 | 0,62 | 0,82 |
| 3 | 0,19 | 0,17 | 0,89 |
| 4 | 0,28 | 0,32 | 1,1 |
| 5 | 0,02 | 0,04 | 2 |
| 6 | 1,2 | 1,8 | 1,5 |
| 7 | 0,17 | 0,02 | 0,12 |
| 8 | 0,19 | 0,18 | 0,95 |
| 9 | 0,13 | 0,22 | 1,7 |
| 10 | 0,08 | 0,02 | 0,25 |
| **Mean** |  |  | **0,95** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Experimental group: adapting stimulus: DEET** |  |
| **Replicate** | **Amplitude before adaptation**  | **Amplitude after adaptation** | **Ratio (after/before)** |
| 1 | 0,20  | 0,02 | 0,10 |
| 2 | 0,16 | 0,08 | 0,5 |
| 3 | 0,03 | 0 | 0 |
| 4 | 0,36 | 0,11 | 0,31 |
| 5 | 0,76 | 0,48 | 0,63 |
| 6 | 0,1 | 0 | 0 |
| 7 | 0,13 | 0,04 | 0,31 |
| 8 | 0,21 | 0,05 | 0,24 |
| 9 | 0,43 | 0,02 | 0,05 |
| 10 | 0,21 | 0,15 | 0,71 |
| **Mean** |  |  | **0,29** |
|  |  |  |  |
| **Electrical response of the antennae to DEET after treatment with SNAC (Fig 5) and dbcGMP (Fig 6).** |
| **Control group: application of solvent (distilled water + Triton X-100 1%)** |  |  |  |
|  |  |  |  |
| **Replicate** | **Amplitude before treatment**  | **Amplitude after treatment** | **Ratio (after/before)** |
| 1 | 0,25 | 0,11 | 0,45 |
| 2 | 0,5 | 0,62 | 1,2 |
| 3 | 0,34 | 0,41 | 1,2 |
| 4 | 0,95 | 0,67 | 0,7 |
| 5 | 0,1 | 0,26 | 2,6 |
| 6 | 0,55 | 0,64 | 1,2 |
| 7 | 0,97 | 0,98 | 1 |
| **Mean** |  |  | **1,2** |
|  |  |  |  |
|  |  |  |  |
| **SNAC** |  |  |  |
| **Replicate** | **Amplitude before treatment**  | **Amplitude after treatment** | **Ratio (after/before)** |
| 1 | 0,33 | 0,095 | 0,29 |
| 2 | 0,1 | 0,03 | 0,3 |
| 3 | 0,55 | 0,16 | 0,29 |
| 4 | 0,15 | 0,11 | 0,73 |
| 5 | 0,25 | 0,017 | 0,07 |
| 6 | 0,11 | 0,09 | 0,82 |
| 7 | 0,26 | 0,03 | 0,11 |
| 8 | 0,36 | 0,1 | 0,28 |
| 9 | 0,20 | 0,24 | 1,2 |
| **Mean** |   |   | **0,45** |
|  |  |  |  |
| **dbcGMP** |  |  |  |
| **Replicate** | **Amplitude before treatment** | **Amplitude after treatment** | **Ratio (after/before)** |
| 1 | 0,14 | 0,02 | 0,11 |
| 2 | 1,32 | 0 | 0 |
| 3 | 0,07 | 0,06 | 0,8 |
| 4 | 0,14 | 0,08 | 0,57 |
| 5 | 0,19 | 0 | 0 |
| 6 | 0,37 | 0,12 | 0,32 |
| **Mean** |   |   | **0,3** |
|  |  |  |  |
| In all cases, each replicate is the mean of three consecutive measurements on a single antenna |  |  |  |
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